

Single Turn Bushing Mount Hall Effect Sensor in Size 09 (22.2 mm)



FEATURES

- Accurate linearity down to: $\pm 0.5\%$
- All electrical angles available up to: 360° (no dead band)
- Long life: over 20M cycles
- Non contacting technology: Hall effect
- Model dedicated to all applications in harsh environments
- Robust tool machined aluminum housing



ELECTRICAL SPECIFICATIONS		
PARAMETER	STANDARD	SPECIAL
Electrical angle	90°, 180°, 270°, 360°	Any other angle upon request
Linearity	$\pm 1\%$	$\pm 0.5\%$
Supply voltage	5 V (DC) $\pm 10\%$	Other upon request
Supply current	10 mA typical	16 mA for PWM output
Output signal	Analog ratiometric 10 % to 90 % of V_{supply} or PWM 10 % to 90 % duty cycle	Other upon request
Over voltage protection		+ 20 V (DC)
Reverse voltage protection		- 10 V (DC)
Load resistance recommended		Min. 1 k Ω for analog output and PWM output
Hysteresis		< 0.2 %

MECHANICAL SPECIFICATIONS		
PARAMETER		
Mechanical travel	360° continuous	
Bearing type	Sleeve bearing	Ball bearing upon request
Standard	IP 50; other on request	
Weight	20 g ± 2 g	

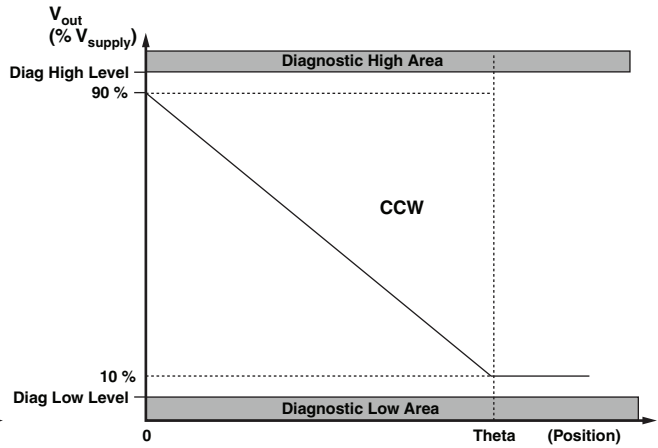
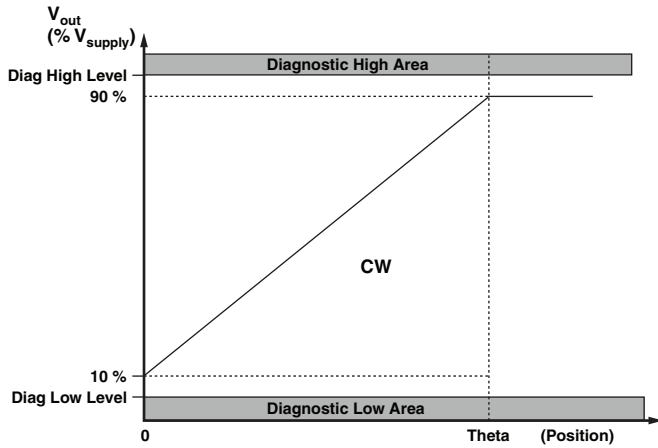
ORDERING INFORMATION/DESCRIPTION									
631HE	0	A	1	W	A	1S22	XXXX	BO 10	e1
MODEL	FEATURES	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	PACKAGING	LEAD FINISH
	0: continuous rotation and antirotation pin 1: continuous rotation and no antirotation pin	A: $\pm 1\%$ B: $\pm 0.5\%$	1: 90° 2: 180° 3: 270° 4: 360° 9: other angles	W: wires Z: custom	A: analog CW B: analog CCW C: PWM CW D: PWM CCW Z: other output	0: 6 mm 1: 6.35 mm 2: 3.175 mm 9: special P: plain S: slotted Z: other type		Box of 10 pieces	
Shaft length from mounting face 22 mm to 72 mm max. per step of 5 mm									

SAP PART NUMBERING GUIDELINES							
631HE	1	B	9	Z	C	0P27	XXXX
MODEL	MECHANICAL FEATURES	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST

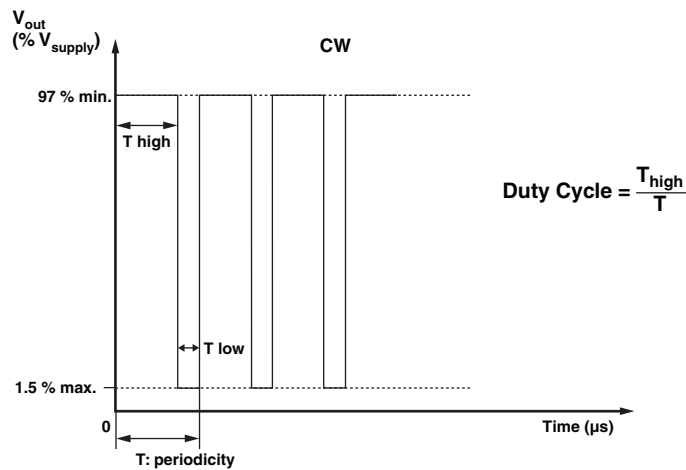


V_{OUT} ANALOG

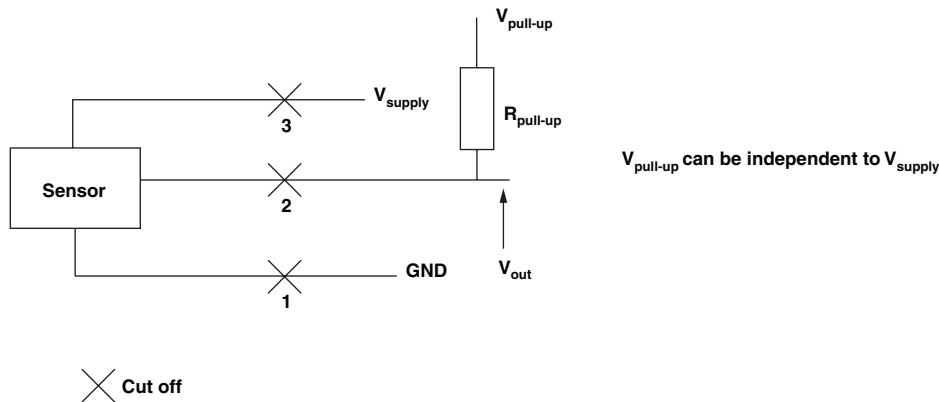
Operating temperature	85 °C	125 °C
Diagnostic High Level	96 % min.	96 % min.
Diagnostic Low Level	2 % max.	4 % max.



V_{OUT} PWM



DIAGNOSTIC MODES			
FAILURE	V_{out} Analog $R_{pull-up}$	V_{out} Analog $R_{pull-down}$	V_{out} PWM $R_{pull-up} = 1\text{ k}\Omega$ $V_{pull-up} = V_{supply} = 5\text{ V}$
1: Broken GND	Diagnostic High Area	Diagnostic Low Area	> 97 % V_{supply} without modulation
2: Broken V_{out}	Diagnostic High Area	Diagnostic Low Area	> 97 % V_{supply} without modulation
3: Broken V_{supply}	Diagnostic High Area	Diagnostic Low Area	> 97 % V_{supply} without modulation
Over voltage $V_{supply} > 7\text{ V}$	Diagnostic High Area	Diagnostic Low Area	> 97 % V_{supply} without modulation
Under voltage $V_{supply} < 2.7\text{ V}$	Diagnostic High Area	Diagnostic Low Area	> 97 % V_{supply} without modulation



ENVIRONMENTAL SPECIFICATIONS	
Vibrations	20 G from 10 Hz to 2000 Hz
Shocks	3 shocks/axis; 50 G half a sine 11 ms
Operating temperature range	- 45 °C; + 125 °C
Life	20M of cycles
Rotational speed (max)	120 rpm
Immunity to radiated electromagnetic disturbances	200 V/m 150 kHz/1 GHz
Immunity to power frequency magnetic field	200 A/m 50 Hz/60 Hz
Radiated electromagnetic emissions	30 MHz/1 GHz < 30 dBμV/m
Electrostatic discharges	Contact discharges: ± 4 kV Air discharges: ± 8 kV
Materials	
Housing	Aluminum anodized
Shaft	Stainless steel
Output	3 lead wires
Bushing mount hardware	
Lockwasher internal tooth	Steel nickel plated
Panel nut	Brass nickel plated

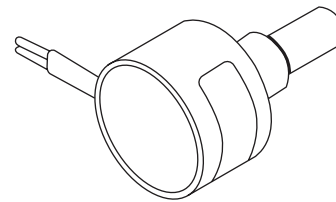
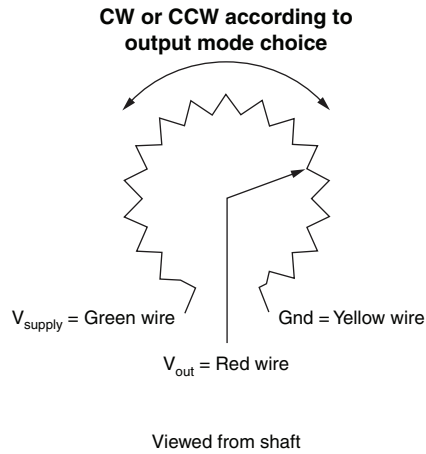
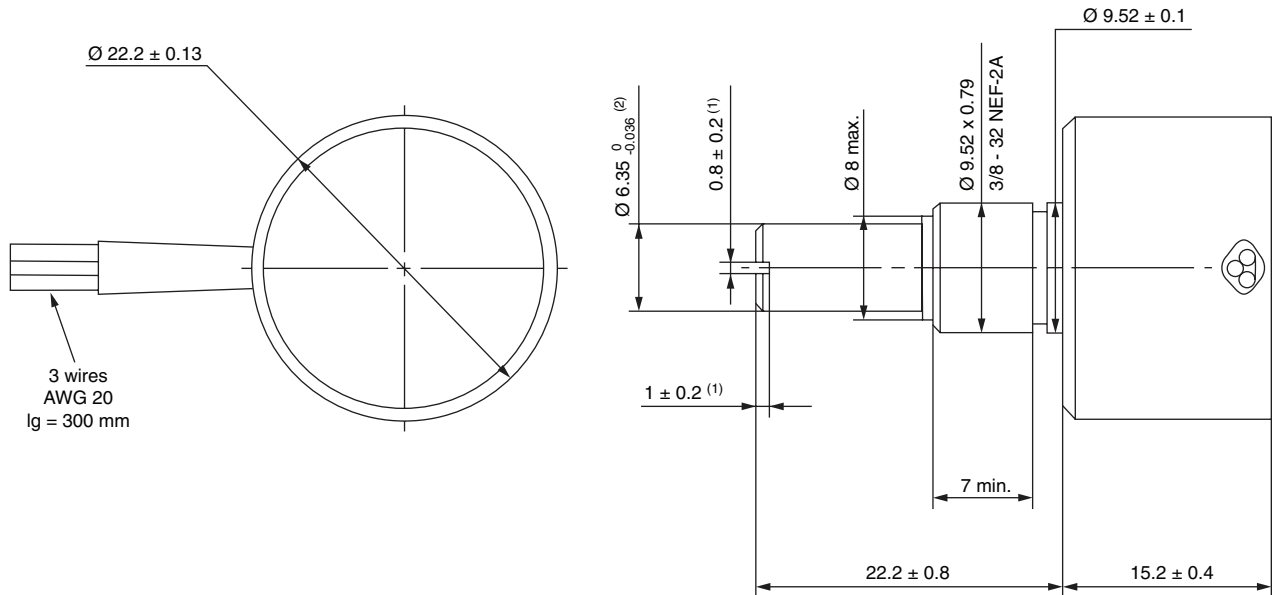


Single Turn Bushing Mount Hall Effect
Sensor in Size 09 (22.2 mm)

Model 631 HE

Vishay Spectrol

DIMENSIONS in millimeters



Dimensions in millimeter
Delivered with nut and washer

- Notes:**
(1) For version slotted shaft
(2) For shaft type "1"

MARKING	
Unit identification	Manufacturer's name and complete sap part reference, date code, and wiring correspondance: colors versus connections.



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.